

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A medical capsule comprising:
 - a) a housing configured and dimensioned to be ingestible and/or implantable in an animal body, the housing having an interior space with a cargo bay area and an opening into the cargo bay area;
 - a payload device, within the cargo bay area, selected from the group of medical diagnostic devices, devices for treating a medical condition and visualizing apparatus;
 - b) a transceiver enclosed within said housing;
 - c) at least one ultrasonic transducer electrically connected to the transceiver;
 - d) a power supply enclosed with the housing and electrically connected to the transceiver; ~~and,~~
 - e) a microprocessor unit for data processing and control, said microprocessor being electrically connected to the transceiver; and
 - an interface for mechanically coupling the payload device to the cargo bay area and electrically coupling the payload device to the microprocessor so as to carry signals between the microprocessor and the payload device, the interface including a connector configured to provide a removable connection between the cargo bay area and the payload device so that the payload device can be plugged into and removed from the cargo bay area.
2. (canceled)
3. (currently amended) The capsule of Claim 2 1, wherein the medical diagnostic devices include at least one microlaboratory device for analyzing body fluids for detecting and/or measuring blood, mineral, toxins and/or microorganisms.

4. (currently amended) The capsule of Claim 3, wherein the microlaboratory device is a microfluidic device.

5. (withdrawn) The capsule of Claim 2, wherein the medical diagnostic device includes a microphone or temperature-measuring device.

6. (withdrawn) The capsule of Claim 2, wherein the device for treating a medical condition comprises a medically efficacious material and means responsive to a signal for expelling the medically efficacious material from the capsule.

7. (withdrawn) The capsule of Claim 6, wherein the medically efficacious material comprises a medicament selected from the group consisting of antibiotic, antiviral compounds, chemotherapeutic agents, nutriment, radioactive isotopes, dyes, tracers, radio-opaque materials, growth factors, hormones and steroids.

8. (withdrawn) The capsule of Claim 6, wherein the visualizing apparatus comprises an optical camera and a light source.

9. (withdrawn) The capsule of Claim 8, wherein the light source is a LED or a flash lamp.

10. (original) The capsule of Claim 1, including an array of ultrasonic transducers to provide omni-directional coverage operable in the range of from about 5 MHz to about 20 MHz.

11. (original) The capsule of Claim 10, wherein at least six ultrasonic transducers are included in the array.

12-16. (canceled)

17. (currently amended) The system of Claim 14 ~~29~~, wherein the means external to the body further comprises means for transmitting radio frequency electromagnetic signals and the system further comprises a remote monitoring station for receiving said radio frequency electromagnetic signals.

18. (withdrawn) The system of Claim 14, wherein the capsule further comprises an ultrasonic pulse emitter for generating a plurality of ultrasonic imaging pulses and the means positioned external to the body further comprises means for generating an image from said ultrasonic imaging pulses.

19. (currently amended) A method for medical monitoring of a living body comprising:

- a) positioning a capsule within the body, said capsule being configured to be ingested and including enclosing at least one omni-directional, two-way ultrasonic transducer array multiple directional ultrasonic transducers arranged to provide 2pi steradians of solid angle coverage about the capsule and each electrically connected to a transceiver, a power supply, and a microprocessor;
- b) positioning a least one external transceiver in proximity to an exterior surface of the body; and,
- c) transmitting at least one ultrasonic signal between the at least one external transceiver and the ultrasonic transducer array in the capsule.

20. (original) The method of Claim 19, further comprising the step of measuring a physiological condition within the body, converting information about said physiological condition into a data stream, and transmitting said data stream via a signal to a position outside the body.

21. (original) The method of Claim 20, wherein the signal is an ultrasonic signal received by the external transceiver.

22. (original) The method of Claim 19, wherein multiple external transceivers are attached to the exterior surface of the body at spaced apart respective positions.

23. (original) The method of Claim 22, wherein the multiple external transceivers provide continuous tracking of the capsule's position within the body.

24. (original) The method of Claim 19, wherein said medical monitoring comprises monitoring of one or more of heart beat rate, breathing rate, body temperature, pH, or presence of blood, toxin, microorganisms, minerals or salts.

25. (new) The capsule of Claim 1, wherein the connector includes conductive pins and/or sockets for providing the removable connection.

26. (new) The capsule of Claim 1, further comprising multiple directional ultrasonic transducers, electrically connected to the transceiver, arranged to provide 2π steradians of solid angle coverage about the capsule.

27. (new) The capsule of Claim 26, wherein each of the transducers is configured and arranged to provide approximately a steradian or more of solid angle coverage over a different sector of the 2π steradians of solid angle coverage.

28. (new) The capsule of Claim 1, wherein the payload device, microprocessor unit, transceiver and at least one transducer cooperate to measure a physiological condition within the body, convert information about said physiological condition into a data stream, and transmit said data stream via a signal to a position outside the body.

29. (new) A system for wireless communication with a transceiver within a living body, the system comprising:

a) at least two capsules each configured and dimensioned to be ingestible and/or implantable in an animal body, each capsule including:

a payload device selected from the group of medical diagnostic devices, devices for treating a medical condition and visualizing apparatus;
a two-way ultrasonic transducer array;
a transceiver connected to the transducer array;
a power supply; and
a microprocessor,
wherein the at least two capsules are configured for networked communication with each other using ultrasonic signals,
wherein each of the networked capsules is identified by a unique identity (ID) address or a unique acoustic frequency, and
wherein the networked communication includes a two capsule handshake procedure wherein one of the capsules periodically initiates transmission and the other capsule responds directly by acknowledging receipt of the initiated transmission; and,
b) means positioned external to the body for transmitting and receiving ultrasonic signals to and from at least one of the at least two capsules.

30. (new) The system of Claim 29, wherein the transducer array includes a two-way ultrasonic transducer array arranged to provide a 2π steradians of solid angle coverage about the capsule.

31. (new) A medical capsule comprising:
- a housing configured and dimensioned to be ingestible and/or implantable in an animal body;
 - a payload device, retained in the housing, selected from the group consisting of medical diagnostic devices, devices for treating a medical condition and visualizing apparatus;
 - a transceiver enclosed within said housing;
 - multiple directional ultrasonic transducers, electrically connected to the transceiver, arranged to provide 2π steradians of solid angle coverage about the capsule;
 - a power supply enclosed with the housing and electrically connected to the transceiver; and,
 - a microprocessor unit for data processing and control, said microprocessor being electrically connected to the transceiver and the payload device.